

**CLAIM AMENDMENTS**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims**

1 1. (Currently Amended) A method of managing virtual routing forwarding  
2 (VRF) tables at a provider edge PE router of a L3 virtual private network (VPN),  
3 said PE router maintaining a VPN-IP master routing information base (RIB) and a  
4 sub-RIB for each said VRF table, comprising the steps of:

5 maintaining an import route target (ImpRT) tree comprising all ImpRT  
6 attributes currently configured on said PE router;

7 modifying an ImpRTi attribute of a VRFi table;

8 searching said ImpRT tree for a match to said ImpRTi attribute to identify a  
9 VRFm table having said ImpRTi attribute;

10 performing a route refresh operation only ~~if~~when a match is not found; and

11 updating said VRFi table accordingly, using an association between each said  
12 VRF table and a respective sub-RIB.

1 2. (Previously Presented) The method of claim 1,

2 wherein said ImpRT tree maintains a list of all ImpRT attributes at a PE  
3 node, each ImpRT attribute being associated with all VRF tables that are currently  
4 configured with said ImpRT attribute.

1  
1 3. (Original) The method of claim 1,

2 wherein said step of modifying comprises adding said ImpRTi attribute to  
3 said VRFi table.

1  
1 4. (Original) The method of claim 3,

2 wherein said step of updating comprises copying all routes Rm from said  
3 VRFm table into said VRFi table, whenever said VRFm table is found in said  
4 ImpRT tree.

1  
1 5. (Currently Amended) The method of claim 4, further comprising:

2 updating said ImpRT tree to include an association between said ImpRTi  
3 attribute and said VRFi table.

1  
1 6. (Previously Presented) The method of claim 3,

2 wherein said step of updating comprises performing a route refresh whenever  
3 said VRFm table is not found in said ImpRT tree.

1 7. (Previously Presented) The method of claim 4, further comprising:  
2 searching for said routes Rm in a sub-RIBm associated with said VRFm  
3 table; and  
4 copying said routes Rm from said sub-RIBm into said VRFi table based on all  
5 route target attributes configured for said VRFi table, including said added ImpRTi  
6 attribute.

1  
1 8. (Currently Amended) The method of claim 7, further comprising:  
2 adding said routes Rm to each VRF table in a routing database available at  
3 said PE router.

1  
1 9. (Original) The method of claim 2,  
2 wherein said step of searching is performed through said master RIB.

1  
1 10. (Previously Presented) The method of claim 9,  
2 wherein said master RIB includes all routes in all VRF tables at said PE  
3 router and further includes all routes that were filtered out at said PE router using  
4 ImpRT attributes.

1  
1 11. (Original) The method of claim 1,

2 wherein said step of modifying comprises removing said import route target  
3 ImpRTi from said VRFi table.

1  
1 12. (Previously Presented) The method of claim 11,  
2 wherein said step of updating comprises parsing all routes in said VRFi table  
3 and removing all routes from said VRF table that no longer match remaining  
4 import route targets of said VRFi table.

1  
1 13. (Currently Amended) The method of claim 12, further comprising:  
2 deleting all routes that no longer match from the sub-RIB of said VRF table.

1  
1 14. (Currently Amended) The method of claim 13, further comprising:  
2 deleting in said master RIB every route Rd that no longer matches any  
3 ImpRT attribute in said ImpRT tree.

1  
1 15. (Currently Amended) The method of claim 1, further ~~comprises~~comprising:  
2 maintaining at said PE router a rejected routes tree comprised of routes that  
3 were not accepted during ImpRT filtering, wherein said step of searching is also  
4 performed on said rejected routes tree.

1 16. (Currently Amended) At a provider edge PE router, a tree data structure,  
2 stored on a computer-readable storage medium, comprising, for each import route  
3 target ImpRT attribute configured on said PE router,

4 a pointer to a virtual routing forwarding ~~VRF~~ (VRF) table having said  
5 respective ImpRT attribute, and

6 an association between each said VRF table and a respective sub-RIB.

7 wherein a route refresh operation is performed only if a match between a  
8 modified ImpRT attribute and an attribute stored in the VRF table is not found.

1  
1 17. (Canceled).

1 18. (Currently Amended) A tree data structure stored on a computer-readable  
2 medium for enabling modification of virtual routing forwarding (VRF) tables at a  
3 PE router, comprising, for each import route target ImpRT attribute configured on  
4 said PE router,

5 a pointer to a VRF table with said respective ImpRT attribute, and

6 an association between each said VRF table and a respective sub-RIB.

7 wherein a route refresh operation is performed only if a match between a  
8 modified ImpRT attribute and an attribute stored in the VRF table is not found.